

Total Maximum Daily Load Development for Middle & South River Watersheds

March 4, 2003

Augusta County Government Center



Which Waters are Impaired?

- ➡ Upper Middle River
- ➡ Lower Middle River
- ➡ Moffett Creek
- ➡ Lewis Creek
- ➡ Polecat Draft
- ➡ South River

What is a TMDL?

- **“Total Maximum Daily Load” -**
- The Amount of Pollution A Stream Can Receive and Still Meet Water Quality Standards
- A TMDL Study Identifies All Sources of Pollution
 - **Point source** pollution is discharged from a discrete location such as a pipe, tank, pit, or ditch
 - **Non-point source** pollution originates from diffuse areas (land surface or atmosphere) having no well-defined source
- Calculate the Amount of Pollutants Entering the Waterbody from Each Source
- Calculate the Reductions in Pollutants, by Source, Needed to Attain/Maintain Water Quality Standards.

Why Do A TMDL?

- 🌐 1972 Clean Water Act (CWA)
 - Water Quality Monitoring
 - Periodic Assessment and Impaired Waters Listing
 - Develop TMDLs for Impaired Waters
- 🌐 1997 Water Quality Monitoring Information and Restoration Act (WQMIRA)
 - Requires TMDLs for Impaired Waters
 - Requires an Implementation Plan.....
- 🌐 **Implementation is Voluntary**

Water Quality Standards

- Standards Are Regulations Based on Federal and State Law That Set Numeric and Narrative Limits on Pollutants.
- Listing of Impaired Waters and TMDL Development Are Based on Water Quality Standards.
- Purpose of Standards:
 - * Protection of 5 Designated Uses: Aquatic Life, Fishing, Shellfishing, Swimming, & Drinking Water

What are the Impairments?

Water Body Name	Bacteria Impairment	Benthic Impairment
Upper Middle River	X	X
Lower Middle River	X	
Moffett Creek	X	X
Lewis Creek	X	X
Polecat Draft	X	
South River	X	

Water Quality Standards: Bacteria Impairment

- The Swimming designated use is not met due to violations of the water quality standard for bacteria (formerly fecal coliform, currently *E. coli*)

Old Fecal Coliform Standards

- Instantaneous: **1000 counts/100mL**
 - Applicable for Monthly Samples
 - Listed As Impaired If More Than 10% of Samples Exceed the Criteria
- Geometric Mean: **200 counts/100mL**
 - 2 or More Samples Per 30 day period

Interim Fecal Coliform Standards

- **Instantaneous: 400 counts/100mL**
 - Applicable for Monthly Samples
 - Listed As Impaired If More Than 10% of Samples Exceed the Criteria
- **Geometric Mean: 200 counts/100mL**
 - 2 or More Samples Per Calendar Month

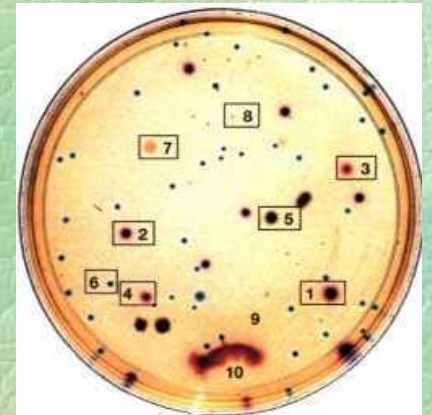
Bacteria (E. coli) Criteria

- Published June 17, 2002 in the Virginia Register
- Effective January 15, 2003
- Single sample max: **235 counts/100mL**
 - applies for all samples collected
- Geometric mean: **126 counts/100mL**
 - applies for two or more samples taken during any calendar month

Pollutant of Concern:

E. Coli

- **Bacteria** Present in the Intestines of Warm Blooded Animals, e.g. Human, Livestock, Wildlife
- **Indicator** of the Potential Presence of Pathogens in Water Bodies
- Possible Pathogen itself



Water Quality Standards: Benthic Impairment

- The Aquatic Life designated use is not met due to violations of the General Standard
 - General Standard (9 VAC 25-260-20): “*All state waters shall be free from substances...which are harmful to human, animal, plant, or aquatic life.*”

Water Quality Standards: Benthic Impairment

- Support of the Aquatic Life designated use is determined (partly) by the biological assessment of the benthic community.
 - Benthic community = critters
 - Critters = food for fish

Benthic Impairments and TMDLs

- After a problem is discovered, more in-depth investigation must be completed to identify the causes of benthic impairment and the reductions necessary to restore water quality

Public Comment Information

- Comment period for this phase of the TMDL ends on **April 3, 2003**
- Send comments to:
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